

Application No.: 10/807,224
Attorney Docket No.: 25384A

REMARKS

Support for the above-requested amendments to claim 1 is found at least in paragraphs [0024] and [0047]. Claim 25 has been amended to correct an inadvertent typographical error and was not amended for any reasons related to patentability. Claim 6 has been canceled without prejudice. No question of new matter arises and entry of the amendments is respectfully requested.

Claims 1 – 5, 7 and 21 – 28 are before the Examiner for consideration.

Rejection under 35 U.S.C. §102(e)

Claims 1 – 5, 21, 23, 24, 26, 27, and 28 have been rejected under 35 U.S.C. §102(e) as being anticipated by U.S. Patent Application No. 2004/0254285 to Rodrigues, *et al.* (“Rodrigues”). It is asserted that Rodrigues discloses a fiberglass non-woven binder that includes a carboxylic acid monomer, which the Examiner is equating to Applicants’ polycarboxy polymer. It is also asserted that Rodrigues teaches that it is well-known in the art to use crosslinking agents such as triethanolamine in fiberglass binders. The fiberglass binder also includes a compound that is capable of forming hydrogen-bonding complexes with the polycarboxy polymer. Examples of such hydrogen-bonding complexes identified in Rodrigues include polysaccharides such as maltodextrins. It is further asserted that the binder may also include a catalyst.

In response to this rejection, Applicants respectfully direct the Examiner’s attention to independent claim 1 and submit that claim 1, as amended, defines a binder composition for glass fibers that is not taught by Rodrigues. Applicants submit that Rodrigues teaches a binder composition that includes at least one carboxy functional copolymer binder crosslinker and at least one compound capable of forming a hydrogen-bonding complex with the carboxy functional copolymer. (*See, e.g.*, paragraphs [0012] and [0018]). The hydrogen-bonding complex-forming compound includes polysaccharides. (*See, e.g.*, paragraphs [0013] and [0035]). It is desirable that the polysaccharides have a low molecular weight to avoid clumping and sticking of the glass fibers. (*See, e.g.*, paragraph [0013]). The hydrogen-bonding complex-forming compound may be modified or derivatized. (*See, e.g.*, paragraph [0037]). Examples of suitable hydrogen-bonding complex-forming compounds include dextrans, maltodextrins, and corn syrup. (*See, e.g.*, paragraph [0014]).

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Rodrigues, however, does not teach a binder composition that includes (1) a pre-binder that has a polycarboxy polymer and a crosslinking agent and (2) a co-binder that may be a dextrin, a modified dextrin, and/or a maltodextrin in which the co-binder is present in the binder composition in an amount of at least about 50% and where the binder composition has a pre-binder:co-binder ratio from 90:10 to 25:75 as required by claim 1. In order for a reference to be anticipatory, each and every element of the claimed invention must be found within the four corners of the cited reference. Thus, because Rodrigues does not teach a binder composition where the pre-binder:co-binder ratio is from 90:10 to 25:75 as required by claim 1, Applicants submit that Rodrigues is not an anticipatory reference.

In view of the above, Applicants submit that claim 1, and all claims dependent therefrom, are not anticipated by Rodrigues and respectfully request that the Examiner reconsider and withdraw this rejection.

Rejection under 35 U.S.C. §103(a)

Claims 7 and 22 have been rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent Application No. 2004/0254285 to Rodrigues, *et al.* ("Rodrigues"). The Examiner admits that Rodrigues does not teach or suggest that the dextrin is borax modified or that the molar ratio of the carboxylic acid groups to the hydroxyl groups is 1:3 to 5:1. The Examiner concludes that it would have been obvious to one of skill in the art to have modified the dextrin of Rodrigues with borax with the incentive of increasing the fire resistance of the end product. In addition, the Examiner concludes that it would have been obvious for one ordinarily skilled in the art to arrive at the molar ratio of the carboxylic acid groups to the hydroxyl groups to lower the curing temperature.

In response to this rejection, Applicants respectfully direct the Examiner's attention to independent claim 1 and submit that amended claim 1 defines a binder composition that is not taught or suggested within Rodrigues. Rodrigues teaches a binder composition that includes at least one carboxy functional copolymer binder crosslinker and at least one compound capable of forming a hydrogen-bonding complex with the carboxy functional copolymer. (*See, e.g.*, paragraphs [0012] and [0018]). The hydrogen-bonding complex-forming compound includes polysaccharides. (*See, e.g.*, paragraphs [0013] and [0035]). It is desirable that the polysaccharides have a low molecular weight to avoid clumping and sticking of the glass fibers. (*See, e.g.*, paragraph [0013]). The hydrogen-bonding complex-

forming compound may be modified or derivatized. (*See, e.g.*, paragraph [0037]). Examples of suitable hydrogen-bonding complex-forming compounds include dextrans, maltodextrans, and corn syrup. (*See, e.g.*, paragraph [0014]).

Applicants respectfully submit that Rodrigues does not teach or suggest a binder composition that includes (1) a pre-binder that has a polycarboxy polymer and a crosslinking agent and (2) a co-binder that may be a dextrin, a modified dextrin, and/or a maltodextrin in which the co-binder is present in the binder composition in an amount of at least about 50% and where the binder composition has a pre-binder:co-binder ratio from 90:10 to 25:75 as claimed by claim 1. Although Rodrigues teaches a carboxy-functional copolymer binder and a polysaccharide, Rodrigues does not teach or suggest a pre-binder:co-binder ratio from 90:10 to 25:75 as required by claim 1. In fact, Rodrigues is silent as to any teaching of a pre-binder: co-binder ratio.

In addition, Applicants submit that there is no motivation for one of skill in the art to arrive at the presently claimed invention based on the disclosure of Rodrigues. To establish a *prima facie* case of obviousness, there must be some motivation, either within the reference or in the knowledge of those of skill in the art, to modify the reference or combine the references' teachings, there must be a reasonable expectation of success, and the prior art references must meet all of the claim limitations. (*See, e.g., Manual of Patent Examining Procedure*, Patent Publishing, LLC, Eighth Ed., Rev. 3, August 2005, §2142). One of ordinary skill in the art would not be motivated to arrive at the presently claimed binder composition that includes (1) a pre-binder that has a polycarboxy polymer and a crosslinking agent and (2) a co-binder that may be a dextrin, a modified dextrin, and/or a maltodextrin in which the co-binder is present in the binder composition in an amount of at least about 50% where the binder composition has a pre-binder:co-binder ratio from 90:10 to 25:75 based on the teachings of Rodrigues when Rodrigues is silent as to a pre-binder:co-binder ratio. Without some teaching or suggestion within the four corners of the reference, there can be no motivation, and without motivation, there can be no *prima facie* case of obviousness.

In light of the above, Applicants submit that claims 7 and 22 are not obvious over Rodrigues and respectfully request that this rejection be reconsidered and withdrawn.

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Rejection under 35 U.S.C. §103(a)

Claim 26 has been rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent Application No. 2004/0254285 to Rodrigues, *et al.* ("Rodrigues") in view of U.S. Patent No. 5,026,746 to Floyd, *et al.* ("Floyd"). The Examiner asserts that Floyd discloses a binder composition that includes a starch and acrylic acid monomers. In addition, a cross-linking agent and a catalyst may be present in the composition. It is also asserted that the ratio of monomer to starch may be varied from about 1:50 to 15:1, preferably from 1:1 to about 7:1. Preferred dextrans include white dextrans, canary dextrans, and British gums. The Examiner concludes that it would have been obvious to one of skill in the art to use the dextrans of Floyd as the dextrans of Rodrigues to obtain a binder composition that yields improved recovery.

In response to this rejection, Applicants respectfully direct the Examiner's attention to independent claim 1 and submit that claim 1, as amended, defines a binder composition that is not taught or suggested within Rodrigues or Floyd. Rodrigues teaches a binder composition that includes at least one carboxy functional copolymer binder crosslinker and at least one compound capable of forming a hydrogen-bonding complex with the carboxy functional copolymer. (*See, e.g.*, paragraphs [0012] and [0018]). The hydrogen-bonding complex-forming compound includes polysaccharides. (*See, e.g.*, paragraphs [0013] and [0035]). It is desirable that the polysaccharides have a low molecular weight to avoid clumping and sticking of the glass fibers. (*See, e.g.*, paragraph [0013]). The hydrogen-bonding complex-forming compound may be modified or derivatized. (*See, e.g.*, paragraph [0037]). Examples of suitable hydrogen-bonding complex-forming compounds include dextrans, maltodextrans, and corn syrup. (*See, e.g.*, paragraph [0014]).

Floyd discloses a binder for non-woven fibers that is prepared with a starch-polymer graft, starch, and a starch crosslinking agent. (*See, e.g.*, Abstract and column 2, lines 35 – 39). The binder also provides a starch system that is compatible with an acrylic latex and preferably provides a non-formaldehyde self-crosslinking resin with tensile strengths equivalent to an all acrylic binder but which exhibits less elongation and good water resistance. (*See, e.g.*, column 2, lines 48 – 53). The low molecular weight starch hydrolyzate suitable for use in the binder composition can be obtained from a variety of starches and starch derivatives. (*See, e.g.*, column 3, lines 29 – 30). Certain dextrans such as white dextrans, canary dextrans, and British gums may be used in the binder composition. (*See, e.g.*,

column 3, lines 47 – 51). Maltodextrins are particularly preferred. (See, e.g., column 3, line 58).

Applicants respectfully submit that Rodrigues and Floyd do not teach or suggest a binder composition that includes (1) a pre-binder that has a polycarboxy polymer and a crosslinking agent and (2) a co-binder that may be a dextrin, a modified dextrin, and/or a maltodextrin in which the co-binder is present in the binder composition in an amount of at least about 50% and where the binder composition has a pre-binder:co-binder ratio from 90:10 to 25:75 as required by claim 1. Although both Rodrigues and Floyd teach a copolymer and a dextrin, neither Rodrigues nor Floyd teach or suggest a pre-binder:co-binder ratio from 90:10 to 25:75 as required by claim 1. In fact, Rodrigues and Floyd are silent as to any teaching of a pre-binder: co-binder ratio. Thus, neither Rodrigues nor Floyd teach or suggest the claimed pre-binder: co-binder ratio. Therefore, Applicants submit that Floyd fails to make up for the deficiencies of Rodrigues, namely the teaching of a pre-binder:co-binder ratio from 90:10 to 25:75. Therefore, Applicants submit that claim 26 is non-obvious and patentable.

In addition, Applicants submit that there is no motivation for one of skill in the art to arrive at the presently claimed invention based on the disclosures of Rodrigues and Floyd. To establish a *prima facie* case of obviousness, there must be some motivation, either within the reference or in the knowledge of those of skill in the art, to modify the reference or combine the references' teachings, there must be a reasonable expectation of success, and the prior art references must meet all of the claim limitations. (See, e.g., *Manual of Patent Examining Procedure*, Patent Publishing, LLC, Eighth Ed., Rev. 3, August 2005, §2142). One of ordinary skill in the art simply would not be motivated to arrive at the presently claimed binder composition that includes (1) a pre-binder that has a polycarboxy polymer and a crosslinking agent and (2) a co-binder that may be a dextrin, a modified dextrin, and/or a maltodextrin in which the co-binder is present in the binder composition in an amount of at least about 50% where the binder composition has a pre-binder:co-binder ratio from 90:10 to 25:75 based on the teachings of Rodrigues and Floyd when Rodrigues and Floyd fail to teach the claimed pre-binder:co-binder ratio. Without some teaching or suggestion within the four corners of the reference, there can be no motivation, and without motivation, there can be no *prima facie* case of obviousness.

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In light of the above, Applicants submit that claim 26 is not obvious over Rodrigues in view of Floyd and respectfully request that the Examiner reconsider and withdraw this rejection.

CONCLUSION

In light of the above, Applicants believe that this application is now in condition for allowance and therefore request favorable consideration.

If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the telephone number listed below.

If necessary, the Commissioner is hereby authorized to charge payment or credit any overpayment to Deposit Account No. 50-0568 for any additional fees required under 37 C.F.R. § 1.16 or under 37 C.F.R. § 1.17; particularly, extension of time fees.

Respectfully submitted,

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